

REMARKS

Claims 1-7 and 9-21 and new claims 22-24 are pending in this application. In this Response, Applicants have amended certain claims in this response because Applicants believe these amendments serve a useful clarification purpose, and are desirable for clarification purposes, independent of patentability. Accordingly, Applicants respectfully submit that the claim amendments do not limit the range of any permissible equivalents.

In particular, new claims 22-24 have been added to clarify the types of pre-vulcanized or pre-crosslinked materials previously appearing in claim 15. As no new matter has been added by the amendments herein, Applicants respectfully request entry of these amendments at this time.

THE REJECTION UNDER 35 U.S.C. § 112

Claims 13-21 were rejected under 35 U.S.C. § 112, second paragraph, for the reasons set forth on page 2 of the Office Action. In light of the amendments to claims 13 and 16, Applicants respectfully submit that this rejection is overcome. As such, Applicants respectfully request that the § 112 rejection be withdrawn.

THE REJECTION UNDER 35 U.S.C. § 103

Claims 1-7, 9-13, and 15-21 were rejected under 35 U.S.C. § 103(a) as being obvious over Hiraoka et al (5,574,107) in view Maruko et al (6,465,573) for the reasons stated on pages 2-3 of the Office Action. Applicants respectfully submit that the cited combination does not render obvious the present invention.

The claims of the present invention feature greater than about 60 parts by weight of pre-vulcanized or pre-crosslinked material per 100 parts of a base rubber. In fact, the present invention is directed to golf balls containing high levels of pre-vulcanized or pre-crosslinked materials. *See, e.g.*, 6, lines 11-12. In contrast, the primary reference Hiraoka generally discloses a rubber composition that can include *no more than* 45 parts by weight of a vulcanized rubber powder. Col. 3, lines 18-26. In fact, Hiraoka teaches away from amounts generally greater than 35 parts by weight of the vulcanized rubber powder because “the workability during mixing is inferior.” Col. 4, lines 15-21.

Despite Hiraoka’s *teaching away* from the claimed amount of pre-vulcanized or pre-crosslinked material, the Examiner attempts to remedy the deficiency of the primary reference with Maruko. In light of the fact that “[i]t is improper to combine references where

the references teach away from their combination,” *see In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983), the Examiner appears to support the use of the cited combination based on her opinion that a skilled artisan would still have found it “quite common to vary quantities to achieve the desired performance features,” especially because “Hiraoka is silent to the effect larger amounts of powder will have on the performance of the ball.” Office Action at Page 4.

Applicants strongly disagree with this rationale. A person skilled in the golf ball manufacturing art would have heeded Hiraoka’s warnings regarding the levels of vulcanized rubber powder. It is not common in the art to sacrifice manufacturing ease just to achieve certain performance benefits. As such, a skilled artisan would not have lacked any motivation to increase the amount of vulcanized rubber powder in the mixture beyond that taught by Hiraoka to arrive at the present invention. Furthermore, a skilled artisan would have lacked any reasonable expectation of success in venturing outside of the range taught by Hiraoka.

Even if the Examiner were correct in assuming that a skilled artisan would be motivated to vary the quantity of vulcanized rubber in Hiraoka by ignoring the stated manufacturing issues, *arguendo*, a skilled artisan would not have looked to Maruko as a secondary, modifying reference. In general, Maruko teaches a mixture of a *thermoplastic* resin and a rubber powder in a weight ratio of 75:25 to 25:75. Col. 1, lines 24-29; Col. 3, lines 24-28. In contrast, Hiraoka is directed to a mixture of a base rubber and low levels of vulcanized rubber powder. A skilled artisan, being aware of the fact that a) the base rubber of Hiraoka is a *thermoset* material and b) thermoset and thermoplastic materials have many differences, would not have been motivated to combine the two references at least because of these obvious differences.¹

Furthermore, as addressed in the previous Response to Office Action filed on January 3, 2005, the particle size of the rubber powder in Maruko is significantly greater than that which is presently recited in claim 1 and also that which is taught by Hiraoka. For example, claim 1 of the present invention features a particle size ranging from 5 μm to 100 μm .

1 A thermoplastic polymer is a material that softens or melts when heated and hardens when cooled. Thermoplastic polymers consist of long polymer molecules that are not linked to each other, *i.e.*, they have no cross-links, and are often supplied as granules and heated to permit molding or extrusion. In contrast, a thermoset polymer is a material that cannot be softened on heating because the polymer chains are joined (or cross-linked) by intermolecular bonding. Cross-linking is achieved during molding using chemicals, heat, or radiation; this process is called curing or vulcanization.

Hiraoka teaches that the size of the particles should not be more than 1 mm. Col. 3, lines 58-65. In contrast, Maruko teaches that the particles should at least be 0.7 mm, preferably up to 3 mm. Col. 3, lines 16-30. In fact, Maruko *teaches away* from using a rubber powder with a particle size outside of the disclosed range because of the detrimental effects on resilience. Col. 3, lines 19-23. Based on this difference in particle size, one of ordinary skill in the art would have had no motivation to pick and choose various portions of each reference to arrive at the present invention unless the present invention were used as a template.

For the reasons above, Applicants respectfully submit that neither Hiraoka nor Maruko alone or in combination anticipate or render obvious the present invention. As such, Applicants respectfully request reconsideration and withdrawal of the rejection based thereon.

Ichikawa Does Not Render Obvious Claims 13-18

The Examiner rejected claims 13-18 under 35 U.S.C. 103(a) as being obvious over U.S. Patent Publication No. 2001/0011046 to Ichikawa for the reasons stated on pages 3-4 of the Office Action. Ichikawa does not disclose or suggest the present invention for at least the reasons that follow.

Ichikawa teaches only silicone powder. In contrast, claims 13 and 16 now recite a selected group of pre-vulcanized or pre-crosslinked thermoset materials that does not include silicone powder. A skilled artisan would not have found it obvious to select the recited group of materials based on Ichikawa's disclosure at least because each of the materials in the recited group have a hydrocarbon backbone whereas silicone rubber does not.

Furthermore, despite the broader disclosure of 0.5 to 50 weight percent silicone powder in the Summary of the Invention (Para. 0011) that the Examiner appears to rely on for the rejection, Ichikawa clearly teaches away from using greater than 30 percent by weight silicone powder based on the weight of the base polymer as "uniform dispersion may become difficult, resulting in losses of resilience and durability." *See* Para. 0028. A reference must be considered as a whole. MPEP § 2141.

Based on the amendments herein and the discussion above, Applicants respectfully submit that the rejection based on Ichikawa is overcome. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection based thereon.

CONCLUSION

All claims are believed to be in condition for allowance. If the Examiner believes that the present amendments still do not resolve all of the issues regarding patentability of the pending claims, Applicants invite the Examiner to contact the undersigned attorneys to discuss any remaining issues.

A Petition for Extension of Time is submitted herewith to extend the time for response three months to and including September 25, 2005. In addition, a Request for Continued Examination is submitted. No other fees are believed to be due at this time. Should any fee be required, however, please charge such fee to Swidler Berlin LLP Deposit Account No. 195127, Order No. 20002.0269.

Respectfully submitted,
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Dated: September 15, 2005

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